Phase 0

Average Percentage of COS Support Costs as a Proportion of Total Capital Costs

Series	Capital Cost Range		Average Percentage	95% Confidence Interval		Sample Size (n)
	Low	High		Low	High	
A[1] Buildings & Mis. modifications	$750,000	$250,000,000	5.2%	1.8%	8.5322	12
B Structures	$750,000	$1,314,999	14.0%	5.1%	23.0%	12
	$1,315,000	$2,015,099	10.9%	1.2%	20.5%	12
	$2,015,100	$3,933,999	6.4%	2.0%	10.8%	13
	$3,934,000	$250,000,000	6.1%	1.5%	10.7%	12
C Resurfacing	$750,000	$1,745,214	2.4%	0.0%	6.6%	4
	$1,745,215	$2,766,149	1.5%	0.0%	3.9%	5
	$2,766,150	$5,788,749	3.3%	0.0%	7.0%	5
	$5,788,750	$250,000,000	1.4%	0.0%	3.0%	4
D[1] Realignment	$750,000	$250,000,000	20.0%	9.3%	30.7%	9
E[2] Channelization	NA	NA	NA	NA	NA	NA
F New Construction	$750,000	$9,942,506	4.8%	3.1%	6.6%	5
	$9,942,507	$25,236,191	8.1%	0.0%	16.8%	5
	$25,236,192	$49,717,499	4.5%	0.0%	17.0%	5
	$49,717,500	$250,000,000	0.9%	0.0%	2.5%	5
G[1] Storm/Earthquake	$750,000	$250,000,000	8.6%	0.0%	20.9%	6
H[2] Operational Improvements	NA	NA	NA	NA	NA	NA
J[2] Roadway Safety	NA	NA	NA	NA	NA	NA
K Roadside Safety	$750,000	$877,999	5.4%	0.6%	10.2%	4
	$878,000	$1,294,999	5.1%	0.0%	12.5%	4
	$1,295,000	$1,733,249	6.1%	0.0%	13.0%	4
	$1,733,250	$250,000,000	2.5%	0.0%	6.1%	4
L[1] Landscaping	$750,000	$250,000,000	4.7%	0.0%	10.0%	11
M[1] Protective Betterments	$750,000	$250,000,000	9.5%	0.0%	19.3%	7
N[1] Noise Attenuation	$750,000	$250,000,000	13.2%	0.0%	26.6%	5
P Roadway Rehabilitation	$750,000	$1,630,162	9.1%	4.6%	13.7%	11
	$1,630,163	$2,729,999	9.3%	0.0%	19.1%	11
	$2,730,000	$3,661,499	4.4%	0.7%	8.1%	12
	$3,661,500	$250,000,000	6.0%	1.1%	10.8%	11
Q Widening	$750,000	$1,572,491	11.8%	4.4%	19.2%	15
	$1,572,492	$3,831,064	12.5%	6.7%	18.3%	16
	$3,831,065	$8,161,917	9.5%	6.6%	12.4%	16
	$8,161,918	$250,000,000	5.1%	2.3%	7.9%	15

Excludes projects < $750,000 and projects with > 30% consultant costs
Used historical data from FYs 1992-1997
COS support costs include functional overhead but not administrative overhead

1 - Insufficient data to generate quartile
2 - Insufficient data to generate average

Phase 1

Average Percentage of COS Support Costs as a Proportion of Total Capital Costs

Series	Capital Cost Range		Average Percentage	95% Confidence Interval		Sample Size (n)
	Low	High		Low	High	
A Bldgs & Misc Modifications	$750,000	$1,228,749	30.4%	6.0%	54.9%	9
	$1,228,750	$1,827,999	33.4%	17.1%	49.7%	10
	$1,828,000	$3,209,499	27.5%	17.2%	37.8%	10
	$3,209,500	$250,000,000	14.3%	8.5%	20.0%	9
B Structures	$750,000	$1,182,499	24.1%	20.1%	28.0%	65
	$1,182,500	$2,107,499	16.2%	13.1%	19.2%	65
	$2,107,500	$3,763,494	14.1%	11.6%	16.7%	66
	$3,763,495	$250,000,000	6.9%	5.5%	8.4%	65
C Resurfacing	$750,000	$1,427,395	16.1%	10.7%	21.6%	22
	$1,427,396	$2,524,999	13.0%	7.9%	18.0%	22
	$2,525,000	$3,466,574	5.8%	3.4%	8.2%	22
	$3,466,575	$250,000,000	3.9%	2.2%	5.7%	22
D Realignment	$750,000	$1,362,999	39.5%	20.9%	58.2%	6
	$1,363,000	$2,288,092	24.8%	10.6%	39.0%	7
	$2,288,093	$3,574,548	17.7%	8.6%	26.8%	7
	$3,574,549	$250,000,000	17.8%	10.3%	25.3%	7
E[2] Channelization	NA	NA	NA	NA	NA	NA
F New Construction	$750,000	$1,076,699	14.1%	8.2%	20.0%	28
	$1,076,700	$1,950,799	8.7%	6.0%	11.3%	29
	$1,950,800	$3,098,749	7.1%	4.3%	9.9%	29
	$3,098,750	$250,000,000	5.6%	3.5%	7.7%	28
G Storm/Earthquake	$750,000	$4,537,543	37.4%	0.0%	81.4%	7
	$4,537,544	$10,652,830	17.5%	14.3%	20.7%	7
	$10,652,831	$33,614,053	12.2%	6.5%	17.9%	8
	$33,614,054	$250,000,000	7.7%	1.3%	14.0%	7
H[1] Operational Improvements	$750,000	$250,000,000	18.4%	10.9%	25.9%	8
J[1] Roadway Safety	$750,000	$250,000,000	4.1%	0.8%	7.3%	8
K Roadside Safety	$750,000	$882,999	18.8%	8.9%	28.7%	11
	$883,000	$1,189,999	13.9%	7.4%	20.3%	12
	$1,190,000	$1,891,999	12.4%	2.6%	22.2%	12
	$1,892,000	$250,000,000	8.9%	4.3%	13.4%	12
L Landscaping	$750,000	$881,499	17.7%	13.0%	22.4%	11
	$881,500	$1,120,999	13.9%	8.2%	19.6%	11
	$1,121,000	$1,516,499	12.0%	7.6%	16.4%	11
	$1,516,500	$250,000,000	5.0%	2.2%	7.8%	11
M Protective Betterments	$750,000	$1,013,865	23.0%	0.4%	45.7%	5
	$1,013,866	$1,321,933	16.3%	0.4%	32.1%	6
	$1,321,934	$3,279,225	12.2%	0.1%	24.4%	6
	$3,279,226	$250,000,000	5.0%	1.1%	8.9%	5
N Noise Attentuation	$750,000	$1,227,499	24.8%	11.7%	37.9%	7
	$1,227,500	$1,680,999	23.9%	7.5%	40.3%	7
	$1,681,000	$2,424,204	24.8%	12.6%	37.0%	8
	$2,424,205	$250,000,000	10.8%	2.1%	19.6%	7
P Roadway Rehabilitation	$750,000	$1,329,999	18.4%	14.2%	22.6%	43
	$1,330,000	$2,323,999	13.1%	9.9%	16.4%	44
	$2,324,000	$4,047,108	10.1%	7.2%	12.9%	44
	$4,047,109	$250,000,000	7.5%	5.8%	9.2%	44
Q Widening	$750,000	$2,023,516	24.7%	19.2%	30.2%	39
	$2,023,517	$5,279,267	21.0%	16.2%	25.8%	39
	$5,279,268	$13,546,801	16.0%	13.4%	18.5%	40
	$13,546,802	$250,000,000	11.5%	8.7%	14.3%	39

Excludes projects < $750,000 and projects with > 30% consultant costs
Used historical data from FYs 1992-1997
COS support costs include functional overhead but not administrative overhead

1 - Insufficient data to generate quartile
2 - Insufficient data to generate average

Phase 2

Average Percentage of COS Support Costs as a Proportion of Total Capital Costs

Series		Capital Cost Range		Average Percentage	95% Confidence Interval		Sample Size (n)
		Low	High		Low	High	
A[1]	Bldgs & Misc Modifications	$750,000	$250,000,000	1.6%	0.7%	2.5%	14
B	Structures	$750,000	$1,477,749	2.3%	1.3%	3.2%	48
		$1,477,750	$2,437,199	1.6%	0.7%	2.4%	48
		$2,437,200	$4,781,798	1.0%	0.5%	1.5%	48
		$4,781,799	$250,000,000	1.1%	0.4%	1.8%	48
C	Resurfacing	$750,000	$1,380,232	2.6%	0.9%	4.2%	7
		$1,380,233	$2,608,899	1.8%	0.0%	4.8%	7
		$2,608,900	$3,420,249	2.8%	0.0%	7.5%	7
		$3,420,250	$250,000,000	0.7%	0.1%	1.3%	7
D	Realignment	$750,000	$1,525,421	15.1%	4.9%	25.3%	6
		$1,525,422	$2,302,857	6.4%	1.9%	10.9%	7
		$2,302,858	$3,614,032	5.5%	3.5%	7.5%	7
		$3,614,033	$250,000,000	10.4%	3.4%	17.4%	6
F	New Construction	$750,000	$6,019,897	10.2%	1.4%	19.0%	7
		$6,019,898	$12,439,001	7.5%	2.6%	12.4%	8
		$12,439,002	$30,864,914	9.3%	5.6%	13.1%	8
		$30,864,915	$250,000,000	7.1%	2.3%	11.8%	7
G	Storm/Earthquake	$750,000	$1,179,749	2.0%	0.6%	3.5%	13
		$1,179,750	$2,251,229	1.2%	0.0%	2.4%	13
		$2,251,230	$16,260,636	0.5%	0.1%	0.9%	13
		$16,260,637	$250,000,000	0.8%	0.4%	1.3%	13
H[2]	Operational improvements	NA	NA	NA	NA	NA	1
J[2]	Roadside Safety	NA	NA	NA	NA	NA	0
K[1]	Roadside Safety	$750,000	$250,000,000	2.7%	0.0%	7.8%	8
L[2]	Landscaping	NA	NA	NA	NA	NA	3
M[1]	Protective Betterments	$750,000	$250,000,000	5.1%	0.0%	11.3%	15
N	Noise Attenuation	$750,000	$1,355,494	2.1%	0.0%	4.9%	5
		$1,355,495	$1,537,999	2.8%	0.0%	6.9%	5
		$1,538,000	$2,424,204	2.0%	0.0%	4.9%	6
		$2,424,205	$250,000,000	3.3%	0.3%	6.3%	5
P	Roadway Rehabilitation	$750,000	$1,332,044	5.7%	1.0%	10.5%	14
		$1,332,045	$2,519,449	4.0%	1.3%	6.7%	14
		$2,519,450	$4,796,014	5.2%	1.2%	9.2%	14
		$4,796,015	$250,000,000	1.6%	0.2%	3.1%	14
Q	Widening	$750,000	$2,737,499	9.0%	5.5%	12.4%	34
		$2,737,500	$7,628,111	7.3%	4.3%	10.4%	35
		$7,628,112	$16,746,238	5.5%	3.1%	7.9%	35
		$16,746,239	$250,000,000	2.0%	1.2%	2.8%	35

Excludes projects < $750,000 and projects with > 30% consultant costs
Used historical data from FYs 1992-1997
COS support costs include functional overhead but not administrative overhead

1 - Insufficient data to generate quartile
2 - Insufficient data to generate average

Phase 3

Average Percentage of COS Support Costs as a Proportion of Total Capital Costs

Series	Capital Cost Range		Average Percentage	95% Confidence Interval		Sample Size (n)
	Low	High		Low	High	
A Bldgs & Misc Modifications	$750,000	$1,313,249	17.8%	13.4%	22.2%	8
	$1,313,250	$2,167,999	19.7%	13.7%	25.7%	9
	$2,168,000	$3,242,992	15.9%	10.9%	20.8%	9
	$3,242,993	$250,000,000	15.0%	8.1%	21.9%	8
B Structures	$750,000	$1,113,249	20.6%	18.5%	22.8%	62
	$1,113,250	$1,907,629	20.0%	18.0%	21.9%	63
	$1,907,630	$3,326,749	15.7%	14.1%	17.3%	63
	$3,326,750	$250,000,000	13.1%	11.8%	14.4%	62
C Resurfacing	$750,000	$1,283,999	13.6%	10.3%	17.0%	20
	$1,284,000	$2,066,321	11.3%	8.2%	14.4%	20
	$2,066,322	$3,416,499	10.9%	8.2%	13.7%	21
	$3,416,500	$250,000,000	9.5%	7.8%	11.2%	20
D Realignment	$750,000	$1,190,885	19.5%	14.8%	24.1%	7
	$1,190,886	$2,008,539	19.6%	14.1%	25.0%	8
	$2,008,540	$3,574,548	15.3%	8.8%	21.8%	8
	$3,574,549	$250,000,000	17.2%	12.9%	21.5%	8
E[2] Channelization	NA	NA	NA	NA	NA	2
F New Construction	$750,000	$5,062,055	20.3%	15.5%	25.2%	11
	$5,062,056	$13,649,382	16.3%	13.3%	19.3%	12
	$13,649,383	$32,382,106	12.7%	9.5%	15.8%	12
	$32,382,107	$250,000,000	8.9%	7.9%	10.0%	12
G Storm/Earthquake	$750,000	$1,095,649	12.1%	8.8%	15.4%	23
	$1,095,650	$1,841,299	12.8%	9.2%	16.3%	24
	$1,841,300	$4,010,249	9.9%	7.1%	12.7%	24
	$4,010,250	$250,000,000	8.7%	6.5%	10.8%	24
H[1] Operational Improvements	$750,000	$250,000,000	22.1%	16.3%	27.9%	8
J[2] Roadway Safety	NA	NA	NA	NA	NA	3
K Roadside Safety	$750,000	$882,999	10.5%	6.1%	14.9%	11
	$883,000	$1,129,999	16.0%	8.3%	23.8%	12
	$1,130,000	$1,653,999	11.5%	8.2%	14.7%	12
	$1,654,000	$250,000,000	13.0%	8.0%	18.1%	12
L Landscaping	$750,000	$833,249	18.7%	8.0%	29.3%	7
	$833,250	$1,062,499	20.5%	14.6%	26.5%	8
	$1,062,500	$1,253,249	22.5%	10.0%	35.0%	8
	$1,253,250	$250,000,000	16.1%	9.2%	22.9%	7
M Protective Betterments	$750,000	$1,013,865	22.7%	16.4%	29.1%	5
	$1,013,866	$1,311,531	14.7%	10.1%	19.2%	6
	$1,311,532	$2,725,499	19.8%	9.2%	30.4%	6
	$2,725,500	$250,000,000	11.3%	4.9%	17.6%	5
N Noise Attenuation	$750,000	$972,999	19.7%	9.4%	30.0%	7
	$973,000	$1,680,999	22.7%	16.3%	29.1%	7
	$1,681,000	$2,890,986	20.9%	12.1%	29.7%	8
	$2,890,987	$250,000,000	17.8%	12.3%	23.4%	7
P Roadway Rehabiitation	$750,000	$1,272,749	14.3%	12.0%	16.6%	36
	$1,272,750	$2,079,499	14.5%	12.0%	16.9%	37
	$2,079,500	$3,760,749	13.3%	11.0%	15.5%	37
	$3,760,750	$250,000,000	12.4%	10.9%	13.9%	36
Q Widening	$750,000	$1,656,999	19.9%	15.9%	23.9%	32
	$1,657,000	$4,590,930	18.7%	16.4%	21.0%	33
	$4,590,931	$11,340,999	16.3%	14.1%	18.6%	33
	$11,341,000	$250,000,000	14.5%	13.1%	15.9%	33

Excludes projects < $750,000 and projects with > 30% consultant costs
Used historical data from FYs 1992-1997
COS support costs include functional overhead but not administrative overhead

1 - Insufficient data to generate quartile
2 - Insufficient data to generate average